

A substrate processing apparatus comprises a heating process chamber in which a heating process is performed for a wafer, a load lock chamber, connected to the heating process chamber, for controlling at least oxygen concentration and pressure, a transferring arm transferring the wafer between the heating process chamber and the load lock chamber, and a gate valve shielding the heating process chamber from the load lock chamber. Thus, an insulation film with high quality can be formed. In addition, the wafer is temporarily placed in the load lock chamber adjacent to the heating process chamber without need to be transferred to another unit. Thus, the transferring time period for the wafer can be shortened. In addition, footprints can be decreased.